



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,669	07/20/2001	Gregory S. Francis	920070.406	3153
27370 7590 03/07/2007 OFFICE OF THE STAFF JUDGE ADVOCATE U.S. ARMY MEDICAL RESEARCH AND MATERIEL COMMAND ATTN: MCMR-JA (MS. ELIZABETH ARWINE) 504 SCOTT STREET FORT DETRICK, MD 21702-5012			EXAMINER ZHOU, TING	
			ART UNIT 2173	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/07/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/910,669		FRANCIS ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Ting Zhou		2173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-17 and 19-28 is/are rejected.
- 7) ☒ Claim(s) 9 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The Request for Continued Examination (RCE) filed on 20 December 2006 under 37 CFR 1.53(d) based on parent Application No. 09/910,669 is acceptable and a RCE has been established. An action on the RCE follows.
2. The amendments filed on 20 December 2006, submitted with the filing of the RCE have been received and entered. The applicant has added new claim 28. Claims 1-28 as amended are pending in the application.
3. It is noted that claims 9, 18 and 27 are previously indicated as allowable subject matter.

#### ***Allowable Subject Matter***

4. Claims 9 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter: Claims 9 and 18 each identify the distinct feature of "assigning at least one label of the labeled at least two buttons among the two or more buttons on the one or more displayed pages on the basis of an optimization procedure selected from an optimization-procedure group including a gradient descent substantial optimization procedure and a simulated annealing substantial optimization procedure". The closest prior art, Wagner et al. U.S. Patent 6,002,395, teaches a method of

Art Unit: 2173

building a graphical user interface via substantially optimizing the screen premium. The prior art fails to teach an optimization procedure selected from an optimization-procedure group including a gradient descent substantial optimization procedure and a simulated annealing substantial optimization procedure and thus fails to anticipate or render the above limitations obvious.

6. Claim 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: Claim 27 identifies the distinct feature of “assigning at least one label of the labeled at least two buttons among the two or more buttons on the one or more displayed pages on the basis of an optimization procedure selected from an optimization-procedure group including a gradient descent substantial optimization procedure and a simulated annealing substantial optimization procedure”. The closest prior art, Wagner et al. U.S. Patent 6,002,395, teaches a method of building a graphical user interface via substantially optimizing the screen premium. The prior art fails to teach an optimization procedure selected from an optimization-procedure group including a gradient descent substantial optimization procedure and a simulated annealing substantial optimization procedure and thus fails to anticipate or render the above limitations obvious.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Art Unit: 2173

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 19-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter:

9. Claims 19-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Although the preamble of independent claim 19 recites a system, the remainder of the claim does not support the preamble. The claimed features and elements of independent claim 19 do not include hardware components or features that are necessarily implemented in hardware. The “system” appears directed to software, per se, lacking any hardware to enable any functionality to be realized; that is, the body of the claim recites “means” for accepting input and calculating values, however, “means” can simply be software, i.e. program code. Therefore, the claimed features of claim 19 is actually a software, or at best, directed to an arrangement of software, and software claimed by itself, without being executed or implemented on a computer medium, is not statutory. The scope of the presently claimed apparatus can range from paper on which a program is written, to a program simply contemplated and memorized by a person. Claims 20-27 are rejected for similar reasons.

10. To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of the applicant amending these claims to place them within the four statutory categories of invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-5, 8, 10-14, 17, 19-23, 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. U.S. Patent 6,002,395 (hereinafter "Wagner") and Lynch et al. U.S. Patent 5,835,693 (hereinafter "Lynch").

Referring to claims 1, 10, 19 and 28, Wagner teaches a method, system and computer program product comprising means and circuitry (the developmental computing system comprising a processor, memory, and display taught in the Wagner et al. reference comprises circuitry) (Wagner: column 3, lines 18-30) for accepting user input specifying a geometrical arrangement of two or more buttons on one or more displayed pages (using the GUI builder to specify a placement of buttons such as "PIZZAS", "SANDWICHES", "COFFEE", etc. in the sample pizza shop application shown in Figure 2A, which is an example of the reference's teachings) (Wagner: column 2, lines 21-28, column 3, lines 45-52 and column 4, lines 36-53), means and circuitry for accepting user input labeling at least two of the two or more buttons on the one or more displayed pages (naming the titles of the buttons shown in Figure 2A; for example, assigning the name "SPECIAL DELUX" to button represented by reference number "211-3") (Wagner: column 4, lines 37-46 and further shown Figures 3A-3C, which show controls representing the position and name of the desired button on the GUI), means and

circuitry for accepting user input defining at least one interaction between the labeled at least two buttons (relationships between buttons, for example, pressing the "BEER" button in Figure 2A deletes and replaces the buttons in the "DRINK" screen) (Wagner: column 4, lines 54-62), means and circuitry for accepting user input specifying at least one constraint cost for the defined at least one interaction (parent child relationship between screens and buttons; for example, it can be seen that the buttons "PIZZAS", "SPECIAL PEPPERONI", "SPECIAL DELUX" and "SPECIAL VEGGIE" would need to be placed together under the "PIZZA" category in Figure 2A) (Wagner: column 4, lines 11-21 and 36-47), and means and circuitry for automatically assigning labels of the at least two buttons among the two or more buttons on one or more displayed pages such that the at least one constraint cost is substantially optimized (controls shown in Figures 3A-3C associated with each button shown in Figures 2A-2D; for example, in order to optimize screen space, related items such as "PIZZAS", "SPECIAL PEPPERONI", "SPECIAL DELUX" and "SPECIAL VEGGIE" would be automatically labeled and placed together under the "PIZZA" category; as another example, when the "Beer" button is pressed, only the "Drinks" screen is automatically deleted and replaced, or labeled with new buttons, i.e. Wagner inherently teaches automatically arranging the multiple screens for the touch screen display in order to optimize parent/child relationships, interactions of buttons and screen space) (Wagner: column 4, lines 1-62 and column 13, lines 32-67 and Figure 4). This is further recited in column 17, lines 1-10, column 26, lines 5-35 and shown in Figures 5B and 5C, where logic is given to modify and move buttons and screens according to their relationships. However, Wagner fails to explicitly teach the constraint cost having a corresponding constraint cost value and the at least one constraint cost value is indicative of an optimization of the at least one

Art Unit: 2173

constraint cost. Lynch teaches a design, simulation and optimization solution using a graphical user interface similar to that of Wagner. In addition, Lynch further teaches calculating at least one constraint cost value corresponding to the at least one constraint cost (calculating constraint cost values, i.e. cost function values) (Lynch: column 37, lines 54-67), and the at least one constraint cost value is indicative of a relative optimization of the at least one constraint cost (the cost functions, which have their respective calculated values, are optimized) (Lynch: column 37, lines 54-67 and column 59, lines 46-53). It would have been obvious to one of ordinary skill in the art, having the teachings of Wagner and Lynch before him at the time the invention was made to modify the method for building a graphical user interface of Wagner to include the use of constraint cost values for optimization taught by Lynch. One would have been motivated to make such a combination in order to allow easy and fast optimization of parameters, reducing the cost of labor and preserving design repeatability.

Referring to claims 2, 11 and 20, Wagner, as modified, teach accepting user input specifying one or more sizes of the one or more displayed pages (Wagner: column 17, lines 1-10).

Referring to claims 3, 12 and 21, Wagner, as modified, teach accepting user input specifying two or more locations (positions) of the two or more buttons on the one or more displayed pages (Wagner: column 8, lines 61-67 and column 9, lines 1-4 and lines 34-52).

Referring to claims 4, 13 and 22, Wagner, as modified, teach accepting user input labeling (naming) at least two buttons on a first displayed page presented to the user (Wagner: column 4, lines 11-21 and column 24, lines 16-24).



Referring to claims 5, 14 and 23, Wagner, as modified, teach accepting user input labeling at least one button on a first displayed page presented to the user and accepting user input labeling at least one button on a second displayed page presented to the user (for example, labeling the button "211-2" as "SPECIAL PEPPERONI" in Figure 2A on the first displayed screen, and the button "231-7" as "INDIVIDUAL PAN" in Figure 2D on a subsequently displayed screen) (Wagner: column 4, lines 11-21 and column 24, lines 16-24).

Referring to claims 8, 17 and 26, Wagner, as modified, teach accepting user input specifying at least one weighting factor to be associated with the specified at least one constraint cost (the calculated/evaluated values are weighted) (Lynch: column 59, lines 46-53).

12. Claims 6-7, 15-16 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. U.S. Patent 6,002,395 (hereinafter "Wagner") and Lynch et al. U.S. Patent 5,835,693 (hereinafter "Lynch"), as applied to claims 1, 10 and 19 above, and further in view of Ikemoto U.S. Patent 5,969,717.

Referring to claims 6, 15 and 24, while Wagner and Lynch teach all of the limitations as applied to the claims above, they fail to explicitly teach accepting user input identifying at least one relationship between the labeled at least two buttons selected from a group including a Fitt's movement interaction, a Euclidean-distance interaction, a city-block distance interaction, an x-directed interaction and a y-directed interaction. Ikemoto teaches a method for specifying an arrangement of at least two buttons in building a GUI (column 2, lines 32-46 and further shown in Figure 1) similar to that of Wagner and Lynch. In addition, Ikemoto further teaches identifying the relationship between buttons including a position and distance interaction of the

Art Unit: 2173

buttons (x-directed distance between components and y-directed distance between components) (Ikemoto: column 6, lines 56-59, column 7, lines 1-7 and column 10, lines 29-44). Fitt's movement interaction, Euclidean-distance interaction, a city-block distance interaction, a x-directed interaction and y-directed interaction are all distance related relationships and therefore, could be included in the group of relationships defined between the labeled buttons. It would have been obvious to one of ordinary skill in the art, having the teachings of Wagner, Lynch and Ikemoto before him at the time the invention was made, to modify the GUI building method of Wagner and Lynch to include the use of distance related metrics to define relationships between GUI components, as taught by Ikemoto. One would have been motivated to make such a combination in order to create an efficient interactive process between the user and the GUI builder program; by allowing the users to specifying exactly the distance between each and every component on the display screen, users will be able to create an interface customized to their preferences and needs.

Referring to claims 7, 16 and 25, while Wagner and Lynch teach all of the limitations as applied to the claims above, they fail to explicitly teach specifying at least one constraint cost for the at least one interaction selected from a group including a global-difficulty cost, a pages-to-close-buttons cost, a pages-to-fixed buttons cost, a path-difficulty cost, a pages-to-far buttons cost, and a parent-to-child variability cost. Ikemoto teaches a method for specifying a relationship and interaction between components of a GUI (column 13, lines 25-42 and further shown in Figures 12 and 14) similar to that of Wagner and Lynch. In addition, Ikemoto further teaches identifying the constraint cost for the interaction of components including a pages-to-far buttons cost and a parent-child variability cost (components that are unrelated to each other are

Art Unit: 2173

placed in separate areas on the display screen and a consistent hierarchical parent-child display of components) (Ikemoto: column 13, lines 25-42 and further shown in Figures 12, 15A and 21).

Global-difficulty cost, a pages-to-close-buttons cost, a pages-to-fixed buttons cost, a path-

difficulty cost, a pages-to-far buttons cost, and a parent-to-child variability cost are all types of

interaction relationships between components and therefore, could be included in the group of

constraint cost relationships between GUI components. It would have been obvious to one of

ordinary skill in the art, having the teachings of Wagner, Lynch and Ikemoto before him at the

time the invention was made, to modify the GUI building method of Wagner and Lynch to

include the use of constraint costs for the interaction of GUI components, as taught by Ikemoto.

One would have been motivated to make such a combination in order to create an efficient

interactive process between the user and the GUI builder program; by allowing the users to

specifying exactly what factors and relationships are the most important in placing components

on the display screen, users will be able to create an interface customized to their preferences and

needs.

### ***Response to Arguments***

13. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ting Zhou whose telephone number is (571) 272-4058. The examiner can normally be reached on Monday - Friday 7:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cabeca can be reached at (571) 272-4048. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TZ

*Kristine Kincaid*  
KRISTINE KINCAID  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2101